A New Species of *Marathrum* (Podostemaceae) from Jalisco, Mexico

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ABSTRACT. A new species of Podostemaceae, *Marathrum rubrum*, from Jalisco, Mexico, is described and illustrated. Capillaceous leaf divisions and red leaf color distinguish *M. rubrum* from other species.

RESUMEN. Se describe e ilustra una especie nueva de la familia Podostemaceae (*Marathrum rubrum*) del estado de Jalisco, México. Las divisiones capiliformes y el color rojizo de las hojas distinguen a *M. rubrum* de las otras especies.

The pantropical Podostemaceae are the largest family of aquatic flowering plants. Little taxonomic work has been conducted on New World Podostemaceae since Royen's treatments (1951, 1953, 1954). Currently most species of Podostemaceae in the New World are poorly collected, taxonomic boundaries at both the specific and generic levels are unclear, and factors relating to the unusually high incidence of endemism (e.g., > 45% among New World species) are unresolved.

Marathrum, one of the largest genera of Podostemaceae, is composed of 25 species occurring in tropical river rapids and waterfalls. The genus ranges from the West Indies and Mexico through Central America, to northwestern portions of South America (Royen, 1951). During field studies aimed at clarifying the taxonomy of Podostemaceae in Mexico, collections were made from Jalisco that did not correspond to any described species. These collections serve as the basis for the description of a new species, *Marathrum rubrum* Novelo & Philbrick.

Marathrum rubrum Novelo & Philbrick, sp. nov. TYPE: Mexico. Estado de Jalisco: municipio de Cabo Corrientes, Puente Los Horcones sobre el río, a 27 km al S de Puerto Vallarta rumbo a Chamela, 6 Mar. 1991, *Novelo & Philbrick 1003* (holotype, MEXU; isotype, RSA). Figure 1.

Herbae caule longo, prostrato, applanato; lamina iterum atque iterum pinnata, divisionibus ultimis capilliformibus, 2–4.5 mm longis, 0.02–0.06 mm latis, rubescentibus, apice acutis. Flores solitarii, axillares, pedicellati; pedicelli apice expanso, cupulato, cupula 1.5–2 mm diametro. Tepala triangularia, filamentis alternantia. Stamina 7–9 in verticillo, libera, pistillum cingentia. Antherae 1.5–2.8 mm longae. Styli liberi, conici. Fructus 4.5–5(–6) mm longus, 2 valvis, quaque 3-costata.

Aquatic herbs usually with a long prostrate and flattened stem up to 1 cm diam., strongly adhering to rocks. Leaves alternate, up to 20 cm long, petiole 2.5–9 cm long, cylindrical, up to 0.8 mm diam., with a broadened base; blade repeatedly pinnate, the later divisions capillaceous, 2–4.5 mm long, 0.02–0.06 mm wide, apex acute. Flowers hermaphroditic, actinomorphic, pedicellate, borne singly, axillary, protected by a spathella; spathella 0.7–2 cm long, thin, clavate. Pedicels 3–5.5 cm long, elongating during anthesis, with an expanded apex forming a cuplike process around the capsule base, cup 1.5–2 mm diam., with irregular border. Tepals 0.5–0.9 mm long, triangular, alternating with the stamens. Stamens 7–9, free, in a ring surrounding the pistil; filaments 2.3–4(–9) mm long, subulate, flattened, elongating during anthesis, deciduous; anthers 1.5–2.8 mm long, sagittate, basifixed, 2-celled, dehiscing longitudinally by 2 lateral slits. Ovary superior, ellipsoid, 2-locular; styles 2, 0.6–1.5 mm long, free, conical, ovules numerous, placenta axile. Fruit 4.5–5(–6) mm long and 1.7–2.2 mm diam., 2-locular capsule, suture margins thickened; valves 2, subequal, each 3-ribbed, one of them deciduous. Seeds 0.25–0.30 mm long, 0.12–0.18 mm wide, 574 (SD 317, N = 20) per capsule, obovoid. Pollen 14.5 μm (SD 0.8, N = 30) diam., tricolpate, tectum spinulose.

Paratypes. MEXICO. **Jalisco:** Municipio de Cabo Corrientes, Río Horcones, aprox. 17 km S de Puerto Vallarta rumbo a Chamela, 6 Feb. 1991, *Novelo 979* (MEXU, RSA); Puente Los Horcones sobre el río, a 27 km al S de Puerto Vallarta rumbo a Chamela, 6 Feb.

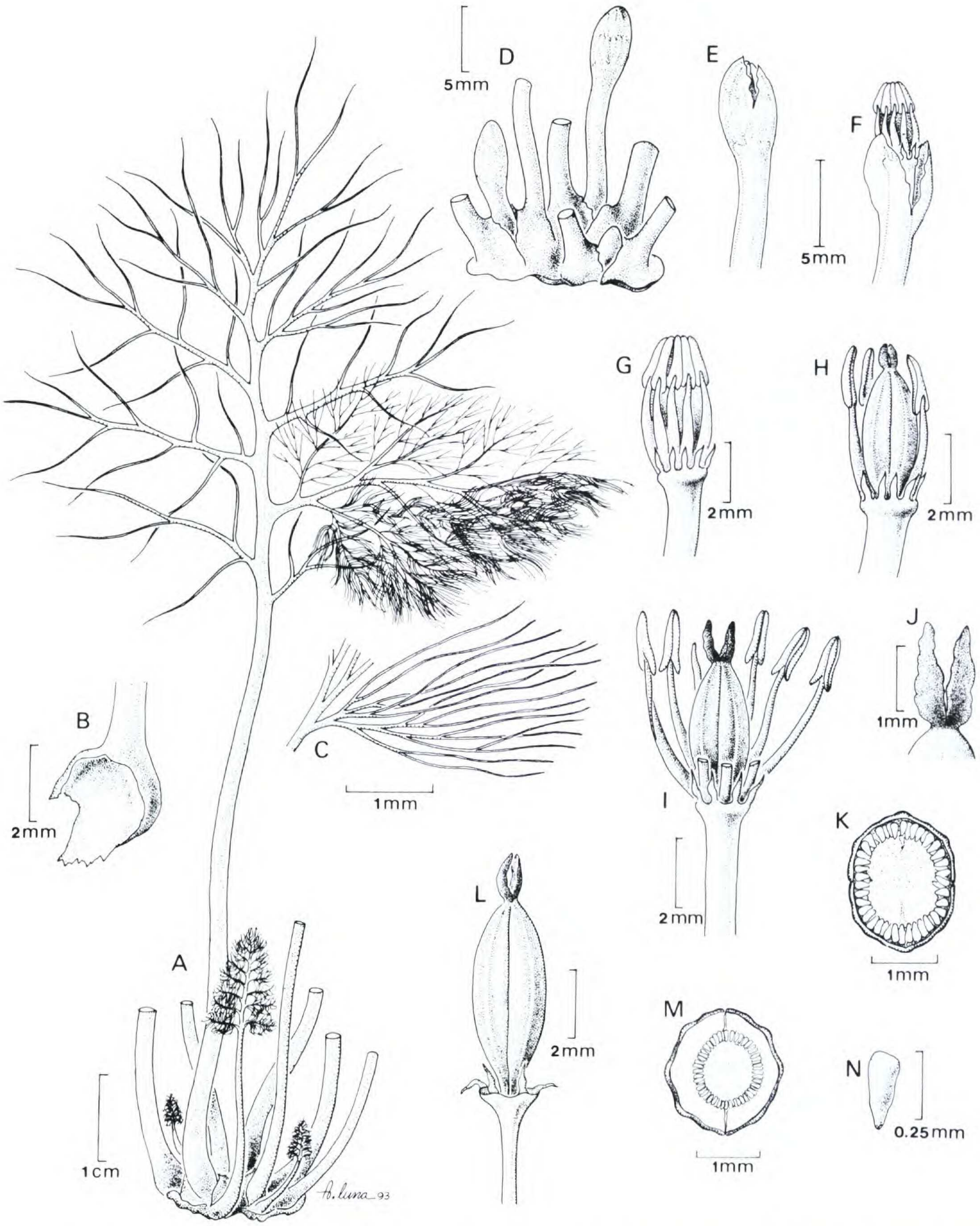

Figure 1. *Marathrum rubrum* Novelo & Philbrick. Drawings based on the holotype. —A. General habit of plant with most of the capillar divisions of the largest leaf removed. —B. Leaf base with petiole. —C. Capillar divisions of leaf. —D. Young flowers projecting from between leaf bases; each flower is covered by a spathella. —E. Flower bud as the spathella is ruptured. —F. Flower projecting through the ruptured spathella. —G. Young flower prior to anther dehiscence and stigma receptivity; note tepals. —H. Young flower with three stamens (six have been removed). —I. Mature flower showing orientation of the styles and anthers at the time of dehiscence (three stamens have been removed). —J. Mature styles with receptive stigmas. —K. Cross section of ovary showing placenta and numerous ovules. —L. Capsule showing the expanded apex of the pedicel; the stamens have been shed. —M. Cross section of a capsule showing ribs, dehiscence points of the capsule valves, and the attachment points of the valves to the placenta. —N. Seed.

1991, *Novelo 982* (MEXU, RSA), 17 Mar. 1992, *Novelo & Philbrick 1035* (MEXU).

Additional observations. *Marathrum rubrum* grows submerged in the swift currents of river rapids, attached directly to granitic boulders of various size and sometimes to submerged branches of *Salix*. Plants have been collected only in the Horcones River, Jalisco, in areas of full sun. This species often occurs on the same rock with *Vanroyenella plumosa* Novelo & Philbrick (Novelo & Philbrick, 1993), *Tristicha trifaria* (Bory ex Willdenow) Sprengel, and *Oserya coulteriana* Tulasne.

Marathrum rubrum belongs to subfamily Podostemoideae sensu Royen (1951), tribe Podostemeae. This subfamily is characterized by minute, scalelike tepals, and flowers within a single sheathlike spathella. Podostemeae is the largest tribe of New World Podostemaceae and is characterized by flowers borne singly, fascicled, or in extra-axillary inflorescences, but not in spiciform monochasia.

In addition to *Marathrum rubrum*, five other species of *Marathrum* occur in Mexico: *M. elegans* P. Royen, *M. haenkeanum* Engler, *M. schiedeanum* (Chamisso) Tulasne, *M. tenue* Liebmann, and *M. trichophorum* P. Royen. Three species (*M. elegans*, *M. haenkeanum*, *M. schiedeanum*) share with *M. rubrum* the expanded apex of the pedicel and posses five or more stamens evenly spaced around the ovary. *Marathrum tenue* and *M. trichophorum* lack the expanded pedicel apex, and possess 2–3 stamens that arise on one side of the ovary.

The leaves display the most distinctive features of *Marathrum rubrum*. It is the only species that has capillaceous leaf divisions, which range from 0.02 to 0.06 mm in diameter. In contrast, the leaf divisions of *M. haenkeanum* (0.075–0.125 mm), *M. elegans* (0.3–1.3 mm), and *M. schiedeanum* (0.1–0.4 mm) are larger in diameter.

The leaves of *M. rubrum* are distinctively red on both abaxial and adaxial surfaces. In contrast, leaves of the other species of *Marathrum* in Mexico are green, sometimes with a reddish abaxial surface.

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